REMARKS

Applicants submit this Reply in response to the final Office Action mailed August 23, 2007. Claims 11 and 13-30 are currently pending, of which claims 11 and 20 are independent. In the Office Action, the Examiner rejected claims 11, 15, 16, 19-21, 23, 24, and 26 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 7,221,821 ("Eldada"). The Examiner rejected claims 13, 14, 17, 18, and 27-30 as being unpatentable over Eldada under 35 U.S.C. § 103(a). Finally, the Examiner rejected claims 22 and 25 under Section 103 as being unpatentable over Eldada in view of U.S. Patent No. 6,504,971 ("Margalit").

To be clear, Applicants' independent claim 11 includes, for example, separate switching and exchanging functions. *See* claim 11 ("An integrated optical add/drop device having switching function . . . [comprising a] tunable optical filter being configured for acting as a selective switch exchanger for exchanging between one interferometric arm and the other at least one of a plurality of optical signals" (emphasis added)). As described in Applicants' specification, for example, at pages 14-18, the integrated optical add/drop device recited in claim 11 may be configured in an ON-state (*e.g.,* shown in FIG. 4) or in a separate OFF-state (*e.g.,* shown in FIG. 5). Thus, with reference to Applicants' claimed "switching function," the claimed add/drop device can be dynamically switched between its ON and OFF states. As discussed in Applicants' previous response dated May 25, 2007, at least U.S. Patent No. 6,285,810 ("Fincato et al.") fails to teach or suggest the claimed switching function.

However, as discussed in more detail below, Eldada and Margalit, whether taken alone or in combination, fail to teach or suggest at least the claimed exchanging function, *i.e.,* "a selective switch exchanger for exchanging . . . at least one of a plurality

of optical signals," as recited in claim 11. Independent claim 20 similarly recites, among other things, "exchanging between one interferometric arm to the other interferometric arm the two half-power optical signals . . . "

Rejections Under 35 U.S.C. § 102(e)

In order to properly establish an anticipation rejection under Section 102, every element of the claims at issue must be found in the applied prior-art reference, either expressly or under principles of inherency. Furthermore, "[t]he identical invention must be shown in as complete detail as is contained in the ... claim." *See* M.P.E.P. § 2131, quoting *Richardson v. Suzuki Motor Co.*, 868 F.2d 1126, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989). In this case, Eldada is legally precluded from anticipating Applicants' claimed invention, for at least the reason that Eldada fails to teach or suggest every element of the invention.

Independent claim 11 calls for a combination including, for example, a "tunable optical filter being configured for acting as a selective switch exchanger for exchanging between one interferometric arm and the other at least one of a plurality of optical signals." Independent claim 20 recites, among other things, "exchanging between one interferometric arm to the other interferometric arm the two half-power optical signals that are centered on at least one of said plurality of central wavelengths." Applicants respectfully submit that Eldada fails to teach or suggest at least "a selective switch exchanger for exchanging . . . at least one of a plurality of optical signals," as recited in independent claim 11, or "exchanging . . . the two half-power optical signals," as recited in independent claim 20.

Eldada discloses "integrated optical add/drop multiplexer devices in which light of a specific wavelength (or specific wavelengths) can be added to or dropped from a main fiber optic cable line." Eldada, Abstract. Some of the add/drop devices in Eldada are "trimmable Mach-Zender Interferometer (MZI) based dynamic add/drop multiplexer[s]." *Id.,* col. 2, ll. 24-26. These MZI-based devices comprise "two optical paths 203 and 205 with tunable filters 206 (e.g., Bragg gratings) formed in them," (*id.*, col. 5, ll. 48-49), such that each optical path 203 and 205 has its own Bragg filter 206. *Id.,* col. 5, ll. 49-52 ("While a [Bragg] filter can be formed separately in each arm, filters 206 are preferably formed from a single Bragg grating that spans both paths 203 and 205"). In operation, the "[o]ptical paths 203 and 205 are connected between two 3 dB directional couplers 202 and 204" (*id.*, col. 5, ll. 59-61), and "[t]he Bragg gratings in optical paths 203 and 205 reflect the channel they are tuned to . . . back into coupler 202, while allowing the rest of the channels . . . to be transmitted through." *Id.*, col. 6, ll. 1-5.

Eldada's optical filters 206 (*see e.g.,* FIGS. 2a-c) actually consist of two separate optical filters, each one formed in a respective interferometric arm 203 and 205. Eldada does not appear to teach or suggest that these optical filters 206 can exchange optical power from one interferometric arm to the other. Rather, the optical filters in the interferometric arms 203 and 205 appear to be optically uncoupled. For example, each optical filter 206 in Eldada may be a Bragg filter that reflects a tuned channel (*i.e.,* wavelength) back into the input coupler 202, while transmitting any unreflected channels through the filter to the output coupler 204. *See, e.g.,* Eldada, col. 6, ll. 1-11; FIGS. 2a-c. Because each Bragg filter 206 in Eldada reflects and transmits optical channels within its respective interferometric arm 203 or 205, the Bragg filters disclosed

in Eldada are not configured to exchange any of their reflected or transmitted optical channels from one interferometric arm to the other.

Eldada discloses an embodiment in which a single Bragg grating spans across both interferometric arms 203 and 205 to form their respective optical filters 206. *See e.g.,* Eldada, col. 5, l. 49-51. Apparently, spanning a single Bragg grating in this manner enables a tuning element to simultaneously tune the optical filters 206 in both interferometric arms. However, from an optical point of view, the single Bragg grating spans the interferometric arms and creates a pair of separate and optically uncoupled Bragg filters 206, *i.e.,* a different optical filter 206 is formed in each interferometric arm 203 and 205. As a result, neither of these uncoupled Bragg filters 206 exchanges its reflected or transmitted optical channels from one interferometric arm to the other. Instead, each of the Bragg filters 206 reflects (and transmits) optical power entirely within its respective interferometric arm. *See, e.g.,* Eldada, col. 2., ll. 34-38 ("The tunable reflective filters of the first and second paths segregate a tuned wavelength from the split optical signal and reflect the tuned wavelength back to the first 3 dB coupler").

Because Eldada teaches optical filters 206 that reflect optical channels entirely within their respective interferometric arms 203 and 205, without any further teaching or suggestion regarding an exchange of optical power from one interferometric arm to the other by the optical filter, Applicants submit that a fair and proper reading of Eldada cannot reasonably anticipate or render obvious at least an "optical filter being configured for acting as a selective switch exchanger for exchanging between one interferometric arm and the other at least one of a plurality of optical signals," as recited

in independent claim 11, or "exchanging between one interferometric arm to the other interferometric arm the two half-power optical signals that are centered on at least one of said plurality of central wavelengths," as recited in independent claim 20.

For at least the foregoing reasons, Applicants respectfully submit that independent claims 11 and 20 are allowable over the art of record. Claims 15, 16, 19-21, 23, 24, and 26 depend on independent claim 11 or 20 and are therefore allowable for at least the same reasons.

Rejections Under 35 U.S.C. § 103(a)

The Examiner rejected claims 13, 14, 17, 18, and 27-30 as being obvious over Eldada. The Examiner rejected claims 22 and 25 under 35 U.S.C. § 103(a) as being unpatentable over Eldada in view of Margalit. Applicants respectfully traverse these Section 103 rejections because a *prima facie* case of obviousness has not been established.

> To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

M.P.E.P. § 2142 (8th Ed., Rev. 4, October 2005), p. 2100-134.

Regarding dependent claims 13, 14, 17, 18, and 27-30, a *prima facie* case of obviousness has not been established for at least the reason that Eldada fails to teach or suggest every element of these claims. Specifically, claims 13, 14, 17, 18, and 27-30 depend from Applicants' independent claims 11 or 20 and thus include every element of

their respective independent claims. As set forth above, Eldada fails to teach or suggest at least an "optical filter being configured for acting as a selective switch exchanger for exchanging between one interferometric arm and the other at least one of a plurality of optical signals," as recited in independent claim 11 and required by its dependent claims 13, 14, 17, 18, and 27. As further explained above, Eldada also fails to teach or suggest at least an "exchanging between one interferometric arm to the other interferometric arm the two half-power optical signals that are centered on at least one of said plurality of central wavelengths," as recited in independent claim 20 and required by its dependent claims 28-30.

Regarding dependent claims 22 and 25, a *prima facie* case of obviousness has not been established for at least the reason that neither Eldada nor Margalit, whether taken alone or in combination, teaches or suggests every element of these dependent claims. In particular, dependent claims 22 and 25 depend from Applicants' independent claim 11 and therefore include every element of claim 11. Again, as discussed above, Eldada fails to teach or suggest at least an "optical filter being configured for acting as a selective switch exchanger for exchanging between one interferometric arm and the other at least one of a plurality of optical signals," as recited in independent claim 11 and required by its dependent claims 22 and 25.

Margalit fails to cure the above-noted deficiencies in Eldada. Margalit is directed to a "method of fabricating an integrated optical device and such a device" (Margalit, Abstract) and appears to have been relied on by the Examiner solely for its alleged disclosure of resonator-cavity loops as a tunable filter. *See* Office Action, p. 5 ("Margalit et al shows the general teaching of utilizing resonant-cavity loops as a tunable filter").

Thus, like Eldada, Margalit also fails to teach or suggest at least an "optical filter being configured for acting as a selective switch exchanger for exchanging between one interferometric arm and the other at least one of a plurality of optical signals," as recited in Applicants' independent claim 11 and required by its dependent claims 22 and 25.

Conclusion

The preceding remarks are based only on the assertions in the Office Action, and therefore do not address patentable aspects of the invention that were not addressed by the Examiner in the Office Action. The claims may include other elements that are not shown, taught, or suggested by the cited art. Accordingly, the preceding remarks in favor of patentability are advanced without prejudice to other possible bases of patentability.

Applicants respectfully request that this Reply After Final under 37 C.F.R. § 1.116 be entered by the Examiner, placing claims 11 and 13-30 in condition for allowance. Applicants respectfully point out that the final action by the Examiner presented some new arguments as to the application of the art of record against Applicants' invention. It is respectfully submitted that the entering of this Reply would allow the Applicants to respond to the final rejections and place the application in condition for allowance.

In view of the foregoing remarks, Applicants submit that this claimed invention, as amended, is neither anticipated nor rendered obvious in view of the prior art references cited against this application. Applicants therefore request the entry of this reply, the Examiner's reconsideration and reexamination of the application, and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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